

Committee on Resources

Subcommittee on Fisheries Conservation, Wildlife and Oceans

Statement

DEPARTMENT OF THE ARMY

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WRITTEN STATEMENT OF BRIGADIER GENERAL ROBERT H. GRIFFIN

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SALMON RECOVERY, COLUMBIA AND SNAKE RIVERS

U.S. ARMY CORPS OF ENGINEERS

BEFORE THE

SUBCOMMITTEE ON FISHERIES CONSERVATION, WILDLIFE AND OCEANS

AND

SUBCOMMITTEE ON WATER AND POWER

UNITED STATES HOUSE OF REPRESENTATIVES

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WASHINGTON, DC

Mr. Chairmen and Members of the Committee: Thank you for the opportunity to testify on the importance of the Army's salmon recovery program on the Columbia and Snake Rivers. I am Brigadier General Robert H. Griffin, Division Engineer, Northwestern Division, Army Corps of Engineers (Corps). With me today is Mr. Doug Arndt, Chief, of our Fish Management Division.

First, let me allay any concern that Federal efforts for salmon restoration have centered on dam removal. The recent distribution of a staff level draft working paper has been somewhat misunderstood and this has caused confusion. The paper only asks Bonneville Power Administration to analyze the impact of several additional alternatives for protecting

salmon. It also notes that these options are not intended to replace alternatives that are already being studied. Let me be clear on this issue, the Corps Lower Snake Feasibility Study is considering whether to recommend breaching the four lower Snake River Federal dams for improved salmon survival or, alternatively, the retention of the dams with continued or additional fish passage improvements. We have not yet narrowed the alternatives. Further, the study is just one part of the Corps efforts for improved salmon and steelhead migration through the multiple-use hydropower projects. Corps efforts are a subset of a larger Federal and regional effort now underway to place hydrosystem efforts in the larger context of the salmon and steelhead life-cycle. Finally, we fully recognize that the authority for dam removal rests with Congress. Moreover, our study recommendations will fully reflect regional input. We view the Corps role as providing the necessary tools to address the uncertainties, benefits and risks of various alternatives to help in the decision-making for continued operation and configuration of the Federal Columbia River Power System.

Regarding House Concurrent Resolution 63, we agree with part 1 delineation of the economic value of the system. Also, we fully agree with and support parts 3 and 4 of the Resolution. These provisions recognize the need for addressing harvest, hatchery and habitat issues in addition to the ramifications of hydro, and propose that any decision be based on sound data, including economic and social costs. Part 2 of the resolution urges that dam removal not be relied upon for fish recovery. We believe that there is a substantial effort underway to address the biological, economic and social costs of salmon restoration and that this process should proceed before any conclusions are drawn.

Many Columbia River stocks of salmon and steelhead are in decline. In 1991, the National Marine Fisheries Service (NMFS) listed the Snake River sockeye salmon as endangered under the Endangered Species Act (ESA). In 1992, the Snake River spring/summer and fall chinook salmon were listed as threatened. Over the last several years, other Columbia and Snake River salmon and steelhead stocks have been listed under the ESA. Currently, there are 12 listed stocks within the Columbia River Basin, with four of these being affected by Snake River dams. No single factor is responsible for the decline of the salmon, and there is no single action that will restore them. Therefore, recovery efforts must necessarily address four separate areas, commonly referred to as the 4H's: harvest, habitat, hatcheries, and the hydropower system.

The Corps operates a series of eight dams on the lower Columbia and Snake Rivers that affect the habitat and migration of anadromous salmon and steelhead. The Corps primary role in recovery efforts is to implement measures at its dams and reservoirs to assist the region in restoring salmon and steelhead populations. These Corps projects are Bonneville, The Dalles, John Day and McNary dams on the lower Columbia River and Ice Harbor, Lower Monumental, Little Goose and Lower Granite dams on the lower Snake River. It is a widely held view that the dams are a major factor in salmon mortality.

The salmon and steelhead ESA listings triggered the requirement for Federal agencies to consult with NMFS on dam operations potentially affecting the listed species. This consultation culminated in a hydropower Biological Opinion (BiOp) for salmon issued by NMFS in March 1995 and a supplemental BiOp for steelhead issued in March 1998. The BiOps described specific Federal actions associated with the operation of the Federal

Columbia and Snake River dams, to avoid jeopardizing the continued existence of the listed species. The 1995 BiOp identified many near term actions to be taken to protect salmon, and a long-term plan to study new ways to operate and configure the dams.

In the near term, we have increased flow augmentation and spill for juvenile fish; juvenile fish transportation has continued in the mix of measures; adult and juvenile fish passage systems have been improved; powerhouse operations have been adjusted; flow deflectors have been added to more dams to decrease gas supersaturation problems; and research and monitoring facilities have been added. The near-term actions have been fairly successful in improving juvenile fish survival at the dams. Recent NMFS research indicates that between 55 and 65 percent of juvenile fish that are left in-river successfully migrate through the Corps dams on the lower Snake and Columbia Rivers, up from about 20 to 40 percent in the 1960s and 1970s. Fish that are transported survive at about a 98 percent rate and produce approximately twice as many returning adults as juvenile fish that migrated in-river.

In response to the requirement to evaluate long-term alternatives for the four lower Snake River dams, the Corps initiated the Lower Snake River Juvenile Salmon Migration Feasibility Study. The primary objective of this study is to develop a plan to effectively and efficiently improve migration conditions for salmon and steelhead in the lower Snake River and contribute to the recovery of these stocks. This study will only address questions and make recommendations related to the four lower Snake River dams. It will not address specific actions on dams and reservoirs on the Columbia River, or other factors in salmon decline besides operation of these projects.

The geographical scope is the lower Snake River, from its confluence with the Columbia River extending upstream approximately 140 miles to the city of Lewiston, Idaho. Within this reach of the river there are four dams and reservoirs designed, constructed and operated by the Corps of Engineers: Ice Harbor, Lower Monumental, Little Goose, and Lower Granite. These are multiple purpose projects, authorized by Congress and operated for power production, inland navigation, recreation, and fish and wildlife.

The Corps is preparing an Environmental Impact Statement (EIS) for the feasibility study in compliance with the National Environmental Policy Act (NEPA). This EIS will include a comprehensive description of the existing conditions and the various alternative actions being investigated. There will be a qualitative and quantitative assessment of the effects of the alternative actions on all system uses and resources (cultural resources, water and air quality, power, navigation, water supply, recreation, commercial fishing, resident and anadromous fish, wildlife, real estate, etc.). In addition, the EIS will include documentation of compliance with all applicable Federal and state laws and treaties, a trade-off analysis or comparison of the proposed

alternatives, and a complete description of the recommended alternative (including the implementation plan for this recommended action).

There are two technical workgroups that are heavily involved in the development of information critical in this and other salmon studies and decisions. These are the Plan for Analyzing and Testing Hypotheses (PATH) and Drawdown Regional Economic Workgroup

(DREW). Both groups include representatives from Federal agencies, state agencies, tribes, consultants, and other regional interests. The PATH group of scientists was formed to provide modeling information to regional decision-makers on salmon and other fish and wildlife solutions. The DREW is a group of economists, social scientists, and other professionals who have been tasked to analyze and describe social and economic effects associated with alternative recovery measures. The word "drawdown" is used in the DREW title because the drawdown or dam breaching options have by far the most significant socio-economic impacts, so most of their analysis is devoted to this option. These groups have engaged independent technical review groups for their efforts.

Three primary alternatives have been identified and are being evaluated in this feasibility study. The alternatives are being evaluated on an equal basis; none is being given preferential consideration. They include:

1) Existing Condition. In accordance with the 1995 and 1998 Biological Opinions, the Corps currently implements a number of measures to improve migration conditions for salmon and steelhead. These include augmented river flows, increased spill for juvenile fish bypass, operation of and improvements to adult and juvenile fish bypass systems, and the continued operation and improvement of the juvenile fish transportation program. Continuing improvements include: improvements to existing juvenile and adult bypass systems; additional barges for juvenile fish transportation; and, flow deflectors on dam spillways to reduce dissolved gas associated with spill.

2) Natural River Drawdown (dam breaching). The Corps has investigated a number of different drawdown scenarios of various depths and duration. The drawdown option that has shown potential for measurable biological benefit over the existing system is what is called "natural river drawdown." This is the controlled breaching of the dams. This option would return the river to a free-flowing (pre-dam) condition, removing all man-made, hydraulic control of this portion of the river. Obviously, this option would have significant effects on other project uses, for instance, commercial barging and power production would cease. Recreation use and resident fish habitat would be affected, and Native American burial sites and artifacts may be exposed.

3) Major System Improvements. Potential system improvements include new surface bypass systems for juvenile fish, turbine improvements for better fish passage survival, and spillway and stilling basin modifications to further dissipate dissolved gas. Surface bypass systems work with the natural tendency of the juvenile fish to migrate at or near the surface of the reservoir. The intent is to increase the number of fish guided away from the turbines (fish can either be guided over a spillway or to a holding facility), and minimize stress on the fish. Turbine passage improvements may be possible through such technological developments as the minimum gap runner currently being tested as part of the Bonneville Dam rehabilitation project.

Limited, preliminary results are available at this time and are provided here for information purposes. These results have been shared with interested parties through the regional coordination process. More detailed information gathered and analyzed for the draft EIS will be contained in 22 appendices. The appendices will cover engineering, anadromous fish, socio-economics, cultural resources, water and air quality, the Clean Water Act, the US Fish

and Wildlife Service Coordination Act Report, resident fish and wildlife, hydrology and other aspects of the study analysis. The Corps will make this information available for public review and comment with the release of the draft EIS, which will provide a comprehensive analysis of all aspects of the study. In addition, appendices and DREW work products are being put on the Walla Walla District web site as they are completed.

Current estimates indicate that under the dam removal alternative, the cost of replacing the electrical power currently generated by the four projects would range from \$250 to \$300 million annually. Because commercial river transport would no longer be available, all movements would shift to rail or truck modes of transportation at an added cost of approximately \$40 million annually. Studies still in progress that may affect this number include a rail capacity analysis, rate studies, and an assessment of roads and other upland infrastructure impacts.

In the water supply analysis, we are estimating that approximately 35,000 acres of farm land would go out of production, since the value of the land and net farm income is insufficient to cover the cost of pump modifications. The direct impact to farmers is expected to be about \$10 million annually. Municipal and industrial water users would incur costs of \$1 to \$4 million annually to make modifications to facilities in the event the dams are removed. In addition, impacts to private wells are estimated at about \$4 million annually.

Analysis of potential effects on recreation and tourism indicates the potential to increase recreational use of a free-flowing river associated with dam breaching in the \$65 to \$75 million per year range.

There are a number of other socio-economic areas where information is still being developed or under technical review. These areas include: commercial fishing, tribal cultural and material impacts, regional and social effects, economic mitigation or compensation, and others.

In addition, preliminary construction costs have been developed for each alternative. The preliminary construction cost to implement the dam breaching option is approximately \$1 billion (subject to change), for breaching the earth embankment sections of the four dams. The \$1 billion would be required over a nine year construction period.

The alternative, major system improvements, would result in increased revenue from power production of \$7 to \$10 million per year due to reduced voluntary spill requirements for fish passage (maximized fish transport eliminates the need for voluntary spill for fish, which means more water for power production). Preliminary construction costs associated with major system improvements range from \$100 to \$200 million over a five year construction period. Other impacts are still being evaluated.

NMFS prepared the analysis of effects on salmon and steelhead. This information has been incorporated into an Anadromous Fish Appendix of the EIS. The analysis incorporates information that is being developed by PATH. It also evaluates the short term impacts associated with construction, evaluates new research data not available to PATH for their analysis, and develops independent conclusions on the effectiveness of the various alternative actions in meeting recovery goals. Some conclusions in the report include:

- Breaching is the most robust action over a wide range of assumptions
- There are plausible sets of assumptions under which breaching yields little or no improvement over transportation alone
- There is uncertainty that breaching by itself, absent other ecosystem measures, would ensure salmon recovery
- There is some risk associated with delayed implementation of drawdown--the time lag may reduce probability of recovery, under some assumptions about the effectiveness of transportation.

The Lower Snake River study continues to engage interested state, tribal, Federal, industry and interest group representatives in various elements of the study through the DREW and through multiple regional meetings open to all parties. It has a comprehensive public outreach program that includes public notices, displays, newsletters, a web site, videos, workshops, focus groups, community group presentations, public information meetings, and reports (i.e. Interim Status Reports, Project Study Plans, etc.). There are also a number of public processes that are required under NEPA including the Notice of Intent, scoping meetings, formal public hearings, and public review of the draft and final EIS. Through this effort the Corps has been able to identify issues and concerns of the public and incorporate them to the extent possible into the study.

Additionally, a Federal caucus group has been formed to develop a comprehensive strategy for recovery of Columbia River Basin fish. The Federal Caucus includes representatives from NMFS, U.S. Fish and Wildlife Service, Bureau of Reclamation, Bureau of Indian Affairs, Bureau of Land Management, Environmental Protection Agency, the Corps of Engineers, U.S. Forest Service, and Bonneville Power Administration. The Caucus is considering actions that could be taken in the areas of hydropower, harvest, hatchery management, and habitat improvements to be integrated into a comprehensive strategy for recovery of the listed salmon. Concurrently they're looking at alternative ways to operate the Federal hydropower system to improve survival for other listed species. The results of the Lower Snake River study will be included in this effort.

The Federal Caucus is working with regional interests in developing and analyzing alternatives, coordinating with, and building upon, products of the regional Multi-species Framework Project headed by the Northwest Power Planning Council. It is worth emphasizing that while there have been staff discussions and analyses regarding biological efficacy and costs of the various options, the Federal agencies have not narrowed the range of alternatives under consideration in the Lower Snake River study.

This fall, the Corps will publish and distribute for agency, and public comment, a draft EIS that describes the alternatives examined in the study and our analysis of economic, social, cultural, biological and engineering effects of the alternatives. Our intent at this time is to identify a preferred alternative in the draft EIS. The decision factors for the preferred alternative and final recommendation include whether the requirements of ESA are met, including whether the alternative will meet survival and recovery objectives for the affected

species, other biological effects, economic effects, financial considerations, tribal trust responsibilities, and statutory or legal requirements. We will then have a 90-day period for public comment, agency reviews, and tribal consultation concerning the preferred alternative and our analyses. A series of public hearings will be held around the region. Comments received during the review period or from the hearings will be addressed in the final EIS. A final EIS is expected to be published in early 2000. If the recommendation in the final EIS includes dam breaching, Congressional authorization would be required. Major system improvements would not require additional authorization.

Mr. Chairmen, thank you for the opportunity to testify on salmon recovery in the Columbia and Snake River basins. This concludes my statement. I will be pleased to answer any questions you or other members of the Committee may have.

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